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Lets diversify by changing culture and challenging stereotypes: a case study from professional construction higher education programmes

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ABSTRACT

The UK construction sector is not diverse and is reputed to be dangerous, dirty, physically demanding and non-professional. Young people often regard construction jobs as a last resort. Yet there is a growing skills shortage that needs to attract greater diversity of applicants. The aim of the BRIDGE (Building Routes Into Degrees with Greater Equality) project was to improve the number and diversity of entrants to professional construction higher education programmes. An in-depth assessment of the current situation informed a theory of change, and identified seven interrelated themes to tackle this. This case study is focused on the recruitment theme. Using action research, imagery/wording used in student recruitment was updated and staff undertook equality, diversity and inclusion training. The findings demonstrate the positive effective of these interventions. For example, on one target programme, the percentage of female students increased from 8% in 2016 to 23% in 2017.

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Construction sector; equality; diversity and inclusion; challenging stereotypes; student recruitment; action research

Background and context

The UK construction industry is a major contributor to the UK economy adding £138 billion in value and accounting for 9% of the total workforce (Rhodes, 2018). The UK government recognises this in its industrial strategy published in November 2017 where it identified £170 m investment as part of the Construction Sector Deal (UK Government, 2019). The Global Construction 2030 report forecasts that '*the volume of construction output will grow by 85% to 15.5 USD trillion worldwide by 2030 with three countries, China, US and India, leading the way and accounting for 57% of all global growth*' (Robinson, 2015). In Europe, growth is slower although the UK is predicted to be

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the largest in Europe, overtaking Germany to become the world's sixth largest construction market by 2030 (Robinson, 2015).

However, there are growing concerns of a skills shortage particularly around graduate level roles (CITB, 2018). The Government's construction sector deal highlights that 32% of the current UK Construction workforce are aged over 50 with only 10% below the age of 25 and the sector faces the double challenge of equipping employees with the skills needed to adopt digital and manufacturing technologies and recruiting and retaining people to replace those leaving (UK Government, 2019). Research indicates that young people are not aspiring/choosing to study construction-related programmes at further and higher education and current employees are also leaving the industry (Ball, n.d.). This situation is further exacerbated by the construction sector being one of the least diverse sectors in the UK (Strachan et al., 2019). It has a poor gender balance with the UK lagging behind the rest of Europe. According to ONS figures, less than 1% of its 800,000 construction and building trades workers are women, and across all areas of construction including architects, planners and surveyors, it only rises to 13%, marginally up on the figures from 2007 which stood at 12% (Moncaster & Martha, n.d.). Furthermore, the UK government reports that 7.4% of construction sector employees are from Black, Asian and Minority Ethnic (BAME) communities. This is compared to a national population of 13% (UK Government, 2018).

This lack of diversity is mirrored by the student population on undergraduate and postgraduate construction programmes across further and higher education. According to HESA (2019), 38% of students studying architecture, building and planning in 2017–2018 were female with a similar percentage the year before. The majority of these women are studying architecture-related programmes leaving other programmes with a greater gender imbalance. In engineering and technology (which encompasses civil and construction engineering), only 18% of students are female (HESA, 2019).

There is an urgent need to address this skills gap by increasing the number and diversity of people choosing to study, work and remain in the construction industry. Research has shown that societal beliefs, culture and public perception about a job or a career affects the aspirations of students towards the job (Chang, Sharkness, Hurtado, & Newman, 2014). In addition to this, family units and schoolteachers are part of the influencers in the decision-making process of students (Gerard & Booth, 2015). For the construction sector, there are several barriers that are preventing more young people from entering the sector including its negative image and a lack of career knowledge. There are also specific barriers for women, and those with a BAME background centred mainly around culture, image and stereotypes. Furthermore, their key influencers, teachers and parents also share these negative and stereotypical views of the industry.

This study focusses on professional construction programmes. This encompasses any higher education professional construction programmes within the two HESA JACS Subject Areas: (1) Architecture, Building and Planning, and (2) Engineering and Technology (HESA, 2020). A background literature study identifies six major barriers for young people choosing to apply and enrol on professional construction programmes in higher education:

(1) The image of the industry: A key challenge to recruiting into the construction industry is the image the public has of the industry. An image is the mental picture that is built up through a combination of experience and information gained from other sources. It can influence the attitudes and behaviour of people (Ginige, Amaratunga, & Haigh, 2007). The construction industry has a long-standing negative image and profile, particularly among young people (Waters, 2016). Words typically used by the public to describe working in the construction industry portray this negative image and include: *dangerous, physically demanding, dirty, cyclical, tedious*, and *hazardous*. There is also a public perception about the status of those working in the construction industry. A career in the construction industry is considered less prestigious than many others and is often seen as one where employees are uneducated, lower-skilled and non-professional.

(2) Low levels of career knowledge: Another barrier to aspirations and enrolment in the construction industry is the lack of career knowledge about the sector among students and their key influencers: teachers, parents and family. Research shows that unlike other industries, routes, career opportunities and advancement information are mostly unclear to potential students and their career advisors (Sewalk & Nietfeld, 2013).

(3) Stereotyping particularly around gender: gender stereotypes are '*structured groups of beliefs concerning characteristics – traits, behaviours, attitudes, values and nouns – which are generally thought to be typical or desirable in women or men*' (Navarro-Astor, Román-Onsalo, & Infante-Perea, 2017). There are several beliefs and assumptions about the nature of women and their suitability to work in the construction industry. Two of the most popular arising from the literature are firstly that women do not have the physical qualities necessary to work on site as they lack strength and are scared of heights; and secondly, construction sites are harsh and mentally demanding environments that women would find it hard to endure (Arditi, Gluch, & Holmdahl, 2013; Alessandrini & Process, 2014; Christiana & Adebimpe, 2017; Eisenberg, 2018; Enshassi, Ihsen, & Al Hallaq, 2008). Stereotypical beliefs in society often project the idea that women are more suitable for office jobs like administration and customer care (English & Hay, 2015) and thus women often receive very little career guidance or encouragement to take up a career in the construction sector.

(4) Culture of the industry: The construction industry is perceived to be chauvinistic and discriminative, with a masculine-centric culture, harsh working conditions, non-inclusive recruitment practices and sexist attitudes (Barreto, Pellicer, Carrión, & Torres-Machí, 2017; Galea, Powell, Loosemore, & Chappell, 2015; Ginige et al., 2007; Kolade & Kehinde, 2013). This can make women feel unwanted and be a barrier to them entering and staying in the sector (Sewalk & Nietfeld, 2013). Bad language, sexist jokes and negative attitude towards women are often found to be part of the culture with reports of harassment, swearing and discrimination especially on site. There is also a long-held perception that women are not as good as men, and therefore they have to prove themselves before they can be accepted and trusted (Worrall, Harris, Stewart, Thomas, & McDermott, 2010; Yean, Ling, & Leow, 2008)

(5) Marketing and recruitment practices: the informal nature of the selection and recruitment practices in the sector can often disadvantage certain groups of society. For example, (Matthewson, 2015) found that gendering processes like homosociality is connected to the 'word of mouth' and 'who you know' recruitment practices commonly found throughout the sector with reports of unstructured interviews, discriminatory selections and sexist attitudes during recruitment. Experience and confidence in the candidates are often used as criteria and although these may look fair and objective, they can put certain sectors of society at a disadvantage. For example, women often experience disruptions in their careers and thus may not have gathered enough experience over time (Ibáñez, 2017). Also, people often trust and have confidence in the people they know and in the construction sector, which is predominantly white and male, this can mean that those from underrepresented groups such as women and people from BAME communities (including BAME women) are automatically put at a disadvantage (Navarro-Astor et al., 2017).

(6) Training and education. Some research studies suggest that the construction-related programmes provided by colleges, universities and employers are not as inclusive as they could be. Materials can depict a narrow view of those in the industry with white males dominating the imagery and examples (Fielden, Davidson, Gale, & Davey, 2000; Whittock, 2002). This can be a barrier for women (Menches & Abraham, 2007; Sewalk & Nietfeld, 2013) in particular, and BAME students more generally. There is some evidence that a higher number of BAME students on construction-related courses drop out or do not proceed to work in the industry after graduation compared to other students (Holloway, 2005) with reports of inadequate support and feelings of neglect. There are also concerns about the curriculum being too narrow and UK-centric and not providing a more global and inclusive perspective (Sutton, n.d.).

Employer and student perspectives

To supplement the findings from this literature review, 36 semi-structured interviews were undertaken with students and employers linked with the construction programmes as part of the BRIDGE project. These took place with students/employers across the two locations of the BRIDGE project, namely Derby, East Midlands and Gateshead/Newcastle, North East England. The interviews were designed to examine three key aspects (1) the motivations of individuals choosing to study or work in the construction sector; (2) the lived experiences of those working and studying in the construction sector; and (3) the perception of employers concerning diversity in the sector. The data from these interviews were analysed using Nvivo software to identify key themes and also to explore the three aspects of motivation, lived experiences and perception of diversity. The key findings were as follows:

The major influence on those choosing to study or work in the construction sector is from family and friends who have worked in the industry. This is exemplified by the following quote from one of the interviewees: *'So my grandpa's a builder and my dad's always been involved in [construction], . . . so it was always something that I was interested in'*. Family members also provided encouragement and advice, and there were examples

of family members providing opportunities for work experience in the sector. Some students also said that a general interest in buildings and structures also motivated them to apply to study construction.

In terms of their lived experiences, the most common responses from the interviews were about career support and mentoring suggesting that these are key elements for retention and career progression in the sector. One interviewee commented '*I've been speaking to a managing quantity surveyor at our office and he's been an inspiration because he's been saying how he got to where he did and how for me, there would be the opportunities if I want them and I work for it.*' However, there were also responses that indicated that there was a lack of career guidance, job knowledge and information about pathways being provided. This aligns with the findings from the literature review. One interviewee remarked ' *... when I was leaving school, we never really got much career advice*' with another remarking '*there was talks, it was about the military and all sorts of things like that, like motor engineering, but never a lot about the construction industry,*' and another remarking '*I didn't know there were so many roles within it.*'

The interviewees also identified that the male-dominated imagery and gender stereotyping could be a barrier for women entering the sector, particularly for on-site construction roles. One female interviewee commented '*I think a lot of people think that it is a male orientated role, whereas in reality it's not. Anybody can do it ... females are put off by the fact that they need to break the barrier as there's a good chance that they will be the only female on site to begin with ..., there are quite a lot of females, like diversity within the offices, it just tends to be more [MALES] on site*'.

There were examples of sexism by the employers with one white male interviewee in particular commenting that when a female employee gets pregnant and goes on maternity leave, this can be problematic for the business. He commented: '*if I think that Joe can do it rather than Jane, Joe isn't going to get pregnant,*' implying he would rather employ a man than a woman to avoid 'dealing with' a pregnant employee who might require time off from work.

Overall the results from the interviews confirmed the findings from the literature review, outlining the importance of family influence on those choosing to study and work in the construction sector, the lack of career knowledge available to young people and confirming some of the barriers to entry around image, culture and gender stereotyping.

Rationale and theoretical framework

The challenge of increasing the number and diversity of young people choosing to go on to further study or a career in the construction sector is complex. Previous studies show that interventions that are likely to be successful in a complex situation are those that take a holistic approach to target multiple stakeholders in a sustainable way. The BRIDGE project team were keen to adopt this approach and drawing on the results from the literature review and interviews, they developed a theory of change to underpin and provide the theoretical framework for their work (see Figure 1). A theory of change has been shown to be useful in providing a shared understanding and identifying how individual interventions can contribute to the long-term goal. There is also evidence that a team benefits from the process of generating this theory of change (Harries, Hodgson, & Noble, 2014). A theory of change shows what outcomes are expected to

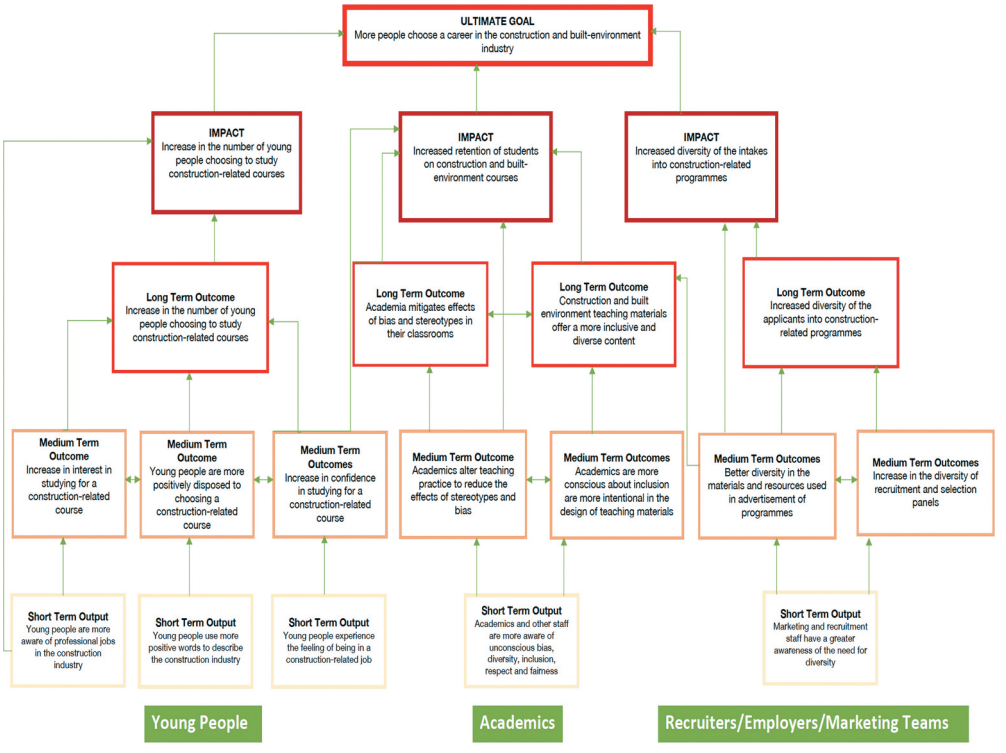

Figure 1. Theory of Change: BRIDGE Project.

occur over the short, medium and longer term as a result of the project. In this case, it was also used to identify the evaluation approach. Backward mapping was used to generate the theory of change (Kail & Lumley, 2012) and included the following stages:

(i) Determine the ultimate goal of the project
(ii) Identify the stakeholders needed to achieve this goal
(iii) Determine the long-term impact from the project for each set of stakeholders
(iv) Identify the medium-term outcomes needed to achieve the long-term impact
(v) Define the short-term outcomes.
(vi) Create the activities and actions to support the short-term outcomes.
(vii) Clarify any assumptions that have been made
(viii) Plan the activities and actions and identify resources to support these.

From this theory of change, seven themes were identified to positively change young people's perception of the sector and improve diversity (see Figure 2). Recruitment was one of these. The aim was to improve the diversity of entrants on to professional construction programmes. Although the interventions are inclusive in nature and targeted at wider diversity, the evaluation of their effectiveness focused on the three key elements that could be readily captured through the current applicant systems, namely gender, ethnicity and disability.

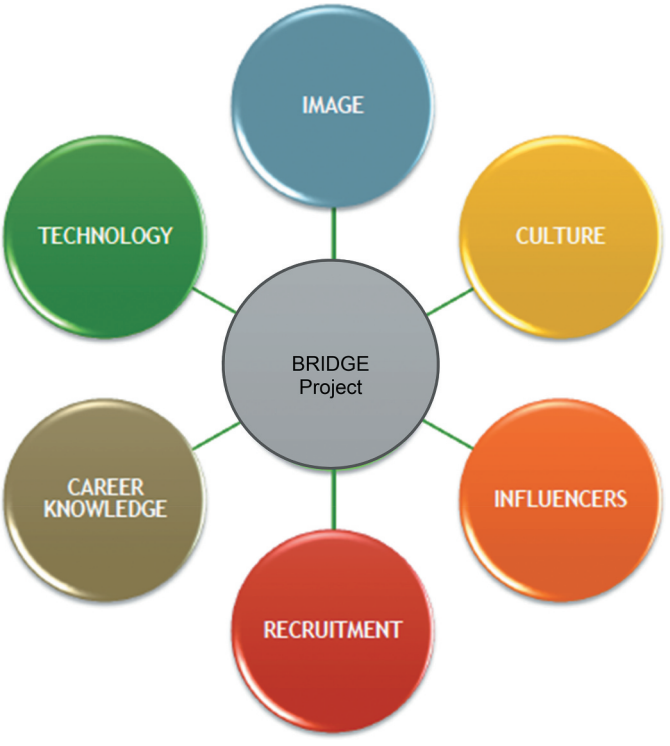

Figure 2. Seven Interventions of BRIDGE Project.

Action research approach and target programmes

Changing approaches to recruitment practice was a key outcome from the theory of change. Action research (Cabaroglu, 2014; Reason & Bradbury, 2001) seems an appropriate approach to adopt within this case study to address this particular outcome. Action research was proposed by Lewin (1946), as a research technique in social psychology. The approach is applicable in this context as action research can be used by practitioners to inform their own actions and is systematic and reflective in nature with the outcomes of earlier interventions feeding into later ones. It consists of an action research cycle usually comprising four stages: plan, act observe, reflect. For this case study, there were three action research cycles, each using a different institution and set of students, and drawing on the observations and reflections from the previous ones. The feedback loop built into action research supports critical reflection, evaluation and learning to inform future interventions. The first action research cycle was undertaken at Gateshead College with their cohort of planBEE Students; the second was undertaken at Derby College for their professional construction programme; and the third cycle was conducted at Northumbria University with their Chartered Surveying Degree Apprenticeship programme.

PlanBEE is an innovative higher level apprenticeship programme designed by Gateshead College in conjunction with employers (Gateshead College, 2020). Employers sponsor the students on the programme, effectively providing them with a salary while they study. The enrolled students rotate to a different employer every six

months, enabling them to experience different roles and organisations within the construction sector. At the same time, they are studying for a higher education curriculum. Once they finish the programme, it is expected that they will be offered permanent employment by one of the organisations. Therefore, when applicants apply to PlanBEE, they are effectively applying for both a job and a place on the programme. Widening participation and improving diversity and inclusion are important issues for both our industry partners and stakeholders and our higher education institutions. It was thought that as the enrolled students received a salary during the programme it would be attractive to a wide range of applicants from different backgrounds who may have otherwise not have had the financial support to study on a traditional programme. However, it was clear that although it was effective in attracting learners from POLAR3 areas (lower socio-economic), and mature HE students, it was not attracting a diverse set of applicants in terms of gender and ethnicity. POLAR3 is a commonly used proxy for socio-economic class, which relates to participation rates of a geographical area (HESA, 2019c). HESA refers to mature students as over 21 years for undergraduates and over 25 years for postgraduate students (HESA, 2019b).

The recruitment process was conducted by a combination of academic staff and employers. Observing the current practice, it was noted that gender and ethnicity was a particular issue, and given the results from the literature review and interviews with employers, it was noted that unconscious bias could be a factor. In planning changes to the recruitment and selection process, the academic team worked collaboratively with the group of employers. This led to changes in the marketing and promotional material and language to make it more inclusive. An opportunity was given to all potential applicants, to a 'meet the employer' event. These were carefully planned to ensure that there was a diverse mix of employer representatives including BAME and female professionals as well as some of the current students. They were also held at one of the employer's premises to provide, and they were held at one of the employer's premises to provide a realistic view of the employment setting for applicants and their parents/carers.

Following a selection process to ensure that applicants met the minimum standard for entry qualifications, applicants were invited to attend for interview. This comprises three stages:

(i) A formal interview with a panel of employer representatives
(ii) An informal, 'soft skills' interview with Student Services and HR professionals
(iii) A Skills Test (mathematical, comprehension, verbal & spatial reasoning

Observing and reflecting on current practice, significant changes were made to (i) and (ii above. Personnel for each panel were carefully selected to ensure a balance of male and female panel members and where possible BAME representatives. Before each set of interviews, the panel members were briefed on key issues of unconscious bias and asked them to think carefully about how this might unknowingly affect their personal perceptions and recruitment decisions.

The effect of these changes were observed and used to plan the second action research cycle at Derby College. The recruitment process here did not consist of an interview stage so the interventions focused on changes to marketing and recruitment literature and processes. The current leaflet and recruitment website were examined and were changed

to be more inclusive. The changes that this has on the diversity of applicants to the programme were monitored.

Observations and reflections from the first two action research cycles were then used to inform change of practice at Northumbria University. This included changes to the marketing literature and to the presentation materials/staff teams at employer and student open days and recruitment events to ensure they were diverse and inclusive. It was also found from the previous two cycles that concentrating on the professional aspects of the sector and demonstrating how it was using technology and was addressing environmental concerns were also valued by applicants and their families. These all contributed to providing a more positive and modern image of the sector and one that has professional career opportunities for young people. A guide to good practice was produced following the evaluation of these action research cycles (see Appendix A).

Discussion and findings

PlanBEE has been successful in terms of retaining talent for the sector and all those that have finished the programme are now employed within the sector. As a result of the changes to recruitment and selection, the proportion of female applicants improved from 8% to 19% and the number of female student enrolments improved from 8 to 23%. Whilst this is a fairly modest improvement compared to the proportion of male applications and enrolments, the culture and dynamics within the study groups has also changed significantly from having this improved gender balance and this is making the study environment much more welcoming for both men and women.

It was also observed that the guidance to the panel on unconscious bias, together with the balance of gender on the panel, positively influenced the quality, depth and intensity of discussion as well as the ultimate recruitment decisions compared with the earlier recruitment rounds.

Improvements in the participation of people from BAME communities and students who had declared themselves disabled, have been more modest, but in 2018 15.38% of all students recruited and enrolled on to PlanBEE were from BAME groups and although no student who had declared themselves disabled enrolled in 2018, in 2016, 8.3% of new students had declared a disability and in 2017, this increased to 13.3% of students enrolled who had declared a disability.

At Derby College, there was also an increase in student enrolment with the percentage of female students growing from 0 to 39% between 2016 and 2018. At Northumbria University, there has also been a positive response from women with female students comprising an average of 29% of their student intake for the Chartered Surveying Degree Apprenticeship programme over the last two years.

There are some limitations to this work. The cohorts were relatively small in size. The data on diversity was limited to that collected routinely as part of the student applicant process. This mainly focused on gender, BAME groups and disability. It would be useful to test these approaches out on larger scale programmes, for a wider diversity of characteristics and for different disciplines that have similar issues. There is also the challenge of staff changes. During the study, for example, a key marketing contact at Northumbria University changed and updated the website, returning to less inclusive and more stereotypical imagery. This was picked up in time but it demonstrates the need

to continually review materials, resources and approaches and providing on going staff development around this agenda.

The project team have produced two practical guides for academic and marketing and recruitment teams to support this approach (see Appendix A and B) and are holding dissemination events at their institutions and across the wider sector. The principles applied here can also be applied to the curriculum and teaching practice to ensure that it is inclusive. They also contributed to the final BRIDGE project report which outlines a Manifesto for Change: 10 Point Plan for Action (Logan et al., 2019).

Conclusions

This case study used a mix of previous literature and interviews with those in the construction sector to understand why there is a lack of diversity in the sector and what the main barriers are. Using a theory of change, a number of interventions were identified including recruitment. Adopting an action research approach, the student marketing and recruitment practices for their professional construction programmes were changed at three different institutions. The study shows that through careful design of the materials/resources and recruitment panels/teams to ensure they are diverse and inclusive in nature, it is possible to improve the diversity of entrants to these programmes. The challenge going forward is to ensure that these approaches are embedded in everyday practice and are sustainable for the future.

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Appendix A. Good Practice Guide – Recruitment

Appendix B. Good Practice Guide – Academic